



ICUP2018  
2nd International  
Conference on  
Urban Planning

**PROCEEDINGS**

Serbia, Nis, November 14-17, 2018

ISBN 978-86-88601-36-8

2<sup>nd</sup> International Conference on Urban Planning - **ICUP2018**

**Publisher**

Faculty of Civil Engineering and Architecture, University of Nis

**For Publisher**

Dean

Petar Mitkovic, PhD

**Editor**

Petar Mitkovic, PhD

**Co-Editors**

Milena Dinic Brankovic, PhD

Milan Tanic, PhD

Aleksandra Miric, PhD

Vuk Milosevic, PhD

**Text formatting, prepress and cover**

Milan Brzakovic

Sanja Jankovic

Vojislav Nikolic

**ISBN 978-86-88601-36-8**

**Circulation**

150 copies

**Printing**

Grafika Galeb Nis

2<sup>nd</sup> International Conference on Urban Planning - **ICUP2018**

**Organized by**

Faculty of Civil Engineering and Architecture, University of Nis  
Urban Planning Cluster, Nis



**Sub-organizers**

Serbian Chamber of Engineers and Institute for nature conservation of Serbia







**1<sup>st</sup> International Conference on Urban Planning ICUP2016** was successfully held in Niš, Serbia on 18<sup>th</sup> and 19<sup>th</sup> November 2016. Main topics of the Conference were: *Urban theory and practice; Development and planning problems; Links between planning, building and land; Urban regeneration; Land readjustment; Interaction between the natural environment and urban areas.* Conference gathered together a large number of professors, researchers and many professionals working in practice. As a result of the Conference, Conference Book of Proceedings was published with 41 scientific papers. During the Conference, round tables were organized where all participants could discuss the current issues in the field of urban planning and design. Urban planning process was contemplated on by professionals and researchers from both theory and practice. Different points of view and topics related to urban design, planning and its implementation, urban landscape, public-private partnership and smart cities were developed and discussed.

During two days, 10 Keynote speakers from different parts of the world gave lectures which were open for all participants. Keynote speakers and their affiliations at the time of the ICUP2016 Conference included: **Dr Ali A. Alraouf**, head of Capacity Building, training, research and development unit at Ministry of Municipality and Environment (MME) Qatar; **Prof. Dr Zorica Nedović-Budić**, Professor at Chair of spatial planning in the School of Architecture, Planning and Environmental Policy at University College Dublin, Ireland; **Dr Alessandro Busa**, Center for Metropolitan Studies at the Technical University of Berlin, Germany; **Dr Hossam Samir Ibrahim**, working with municipal government of Qatar and consultation firms in Regional and Urban planning projects in Egypt, UK, Qatar, and Kingdom of Saudi Arabia; Prof. **Dr Francesco Rotondo**, Associate professor of Urban planning and design at the Polytechnic University of Bari, Italy; **Dr Cristian Suau**, funding director of STUDIO POP, Scotland; **Dr Demetrio Muñoz Gielen**, IHS Institute for Housing and Urban Development Study of the Erasmus University in Rotterdam, Netherlands; **Dr Kosta Mathéy**, lecturer at different Universities in Germany, Cuba, Algeria and Egypt; Prof. **Dr Derya Oktay**, Dean of the Faculty of Architecture at Ondokuz Mayıs University, Samsun, Turkey; and **Dr Teo Keang Sood**, Professor of Law in the Faculty of Law at the National University of Singapore.

Thanks to different experiences and to different scientific and research fields of keynote speakers and participants, Conference themes were analyzed from different points of view, which resulted in interdisciplinary and comprehensive approach of complex urban planning issues. Beside professors and researchers at the Conference, numerous professionals were present. Therefore, one of the conclusions was that cooperation between science/research and professional practice is necessary in order to adopt and implement innovative solutions and to create and plan human friendly spaces according to anthropometric scale. Niš as the “host city” of the conference was an excellent research polygon for discussion, because it represents an example of the city with complex urban structure. It includes rich heritage areas but also new developing areas, thus providing a very attractive and vibrant ambient. Thus, the next conclusion was that inherited sites and built heritage can be used as a tool for city branding and can also help to improve development by learning on past mistakes and achievements. The following conclusion found that cities must be observed as the home to all residents, which must actively participate in its development and planning process, in order to present their real needs and to stop illegal constructions. Finally, it was concluded that public-private partnerships must be encouraged and promoted because it is not possible to develop and implement projects without mutual cooperation. By developing public-private partnership it is possible to achieve community wellbeing through encouraging investors to develop public spaces and community facilities.

## **SCIENTIFIC PROGRAM COMMITTEE**

**Petar Mitkovic**, Phd, Chairman, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Milan Tanic**, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Urban Planning Cluster, Serbia  
**Milena Dinic Brankovic**, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Vuk Milosevic**, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Urban Planning Cluster, Serbia  
**Aleksandra Miric**, Phd, Urban Planning Cluster, Serbia  
**Goran Jovanovic**, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Aleksandar Kekovic**, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Ljiljana Vasilevska**, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Danica Stankovic**, Phd, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Ivana Bogdanovic-Protic**, Phd, Faculty of Civil Engineering and Architecture,  
**Zoran Radosavljevic**, Phd, Ministry of Construction, Transport and Infrastructure  
**Dejan Milenkovic**, Phd, Faculty of Political Sciences, University of Belgrade, Serbia  
**Jelena Zivkovic**, Phd, Faculty of Architecture, University of Belgrade, Serbia  
**Aleksandra Djukic**, Phd, Faculty of Architecture, University of Belgrade, Serbia  
**Milica Bajic Brkovic**, Phd, Faculty of Architecture, University of Belgrade, Serbia  
**Aida Nayer**, Phd, Effat University, Department of Architecture, Saudi Arabia  
**Mila Pucar**, Phd, Institute of Architecture and Urban & Spatial Planning of Serbia  
**Dragana Ostojic**, Phd, Institute for nature conservation, Serbia  
**Demetrio Muñoz Gielen**, Phd, IHS Institute for Housing and Urban Development Study of the Erasmus University in Rotterdam, Netherlands  
**Ali A. Alraouf**, Phd, Head of CB, Development, CB and Research Unit-QNMP, Research and Training, Ministry of urban planning, Doha, Qatar  
**Derya Oktay**, Phd, Dean, Faculty of Architecture, Ondokuz Mayıs University, Samsun, Turkey  
**Marcus Collier**, Phd, School of Natural Sciences, Trinity College, Dublin  
**Margaretha Breil**, Phd, CMCC on strategies for climate change, Venezia

## **ORGANIZING COMMITTEE**

**Slavisa Kondic**, Chairman, Urban Planning Cluster, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Tanja Obradovic**, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Miljana Ignjatovic**, Urban Planning Cluster, Serbia  
**Vojislav Nikolic**, Urban Planning Cluster, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Aleksandra Miric**, PhD, Urban Planning Cluster  
**Milica Igic**, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Milan Brzakovic**, Urban Planning Cluster  
**Biserka Jovanovic**, Urban Planning Cluster  
**Jasmina Tamburic**, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Sanja Jankovic**, Faculty of Civil Engineering and Architecture, University of Nis, Serbia  
**Marija Marinkovic**, Urban Planning Cluster  
**Natasa Panic**, Institute for nature conservation, Serbia  
**Danko Jovic**, Institute for nature conservation, Serbia  
**Dragana Nedeljkovic**, Institute for nature conservation, Serbia  
**Jovana Selmic**, Institute for nature conservation, Serbia  
**Milijana Petkovic Kostic**, Serbian Chamber of Engineers

## FOREWORD

It is with great pleasure that I present to you the following Proceedings of the Second International Conference on Urban Planning ICUP2018, held in Nis on November 14-17, 2018. This is the second conference organized by the Faculty of Civil Engineering and Architecture, University of Nis and Urban Planning Cluster, with the aim of bringing together scholars, researchers and students from all areas of Urban Planning. The ICUP conference explores a broad spectrum of Urban and Spatial Planning issues from both theory and practice. The main topic of this year's Conference is Nature - Urban Planning - Architecture.

These topics are discussed in more than 40 conference papers from various study areas and diverse places in the world, and therefore provide a valuable insight into contemporary urban policies and approaches. They also make good grounds for discussion at the conference and a good basis for further research. The authors are professors, researchers, PhD students and planning professionals. We are especially proud of our keynote speakers and the members of our Scientific Program Committee, who are eminent experts in their fields from all over the world.

We considered that it is very important and responsible that a group of connoisseurs gathered in order to contribute to integrate sustainable principles into urban design and fostering the principles of nature protection. The set of messages presented in this publication represents a contribution to the extremely important debate about the introduction of nature in the urban environment. Some of researches, whose results are presented in this proceeding, bring to our attention that the quality of urban life in ever-growing cities depends on the ecological principles applied in urban areas, from the symbiotic connections between green and gray surfaces and the sustainable use and renewal of natural resources. The crucial mechanisms of supporting sustainable and healthy lifestyle, principles of protection of inherited natural resources, are exposed. Historical and contemporary examples of good practice have been considered, which have improved the quality of life, both in the family micro-space of residential houses and in urban cores of the metropolis. We hope that this knowledge base will become an inspiration to professionals and public to improve the standard of living on the local as well as at the international level; to compete in treating quarters belonging to citizens, cities that develop in accordance with nature and state policies that contribute to the protection of the planet.

Urban structure is a complex and multidimensional system that is prone to change. Therefore, it requires to be closely monitored by continuous research, which brings up some entirely new issues or sheds new light on the old ones. Given the importance of the planning topics elaborated at the conference and numerous questions that are raised here, we firmly believe that it is our task to continue exploring this matter. Hence, we are proud that the ICUP conference establishes itself as a traditional manifestation of the University of Nis. I take this opportunity to thank all of the authors and co-authors of papers, reviewers, keynote speakers, members of the Scientific Program Committee, as well as teachers and associates engaged in the technical preparation of these Proceedings.

And finally, I am pleased to invite all authors from the academic and research community to participate and give their scientific and professional contributions to the future Conferences, for the benefit of all of us.



**Petar Mitkovic**, PhD, Full professor  
Faculty of Civil Engineering and Architecture, University of Nis  
Chairman of the Scientific Program Committee

***Disclaimer***

***The contents of the papers presented in this publication are subject to review, but the authors are responsible for the originality and quality of their papers.***



## CONTENTS

FROM DOHA TO NIS: NATURE-BASED URBAN DEVELOPMENT TOWARDS JUST, RESILIENT AND INCLUSIVE WATERFRONTS

<b>Ali A. Alraouf</b>	<b>11</b>
BRINGING NATURE INTO THE CITY	
<b>Margaretha Breil</b>	<b>25</b>
URBAN-BY-NATURE: TOWARDS A HOLISTIC CONCEPT OF HEALTH AND THE DIMINUTION OF ENVIRONMENTAL EXTERNALITIES	
<b>Jorg Sieweke</b>	<b>33</b>
URBAN DESIGN AND URBAN PLANNING AS COMMUNICATIVE PROCESSES FOR SUSTAINABLE PLACES	
<b>Tatjana Mrdjenovic</b>	<b>39</b>
THE POLICY FRAMEWORK AND THE ACTIVE MOBILITY IN BULGARIA	
<b>Boriana Nozharova, Peter Nikolov</b>	<b>53</b>
THE IMPACT OF THE PREFABRICATED INDUSTRIALIZED SYSTEM OF CONSTRUCTION ON THE SPATIAL ORGANIZATION OF COLLECTIVE HOUSING BUILT BETWEEN 1970 – 1980. IN NIS	
<b>Vladana Petrovic, Goran Jovanovic, Branislava Stoilkovic, Milica Zivkovic</b>	<b>63</b>
GREEN INFRASTRUCTURE IN BELGRADE AS (RE) GENERATIVE SPACE OF BIOPHILIA: THE CASE STUDY OF BLOCKS 45, 70 AND SAVAMALA	
<b>Ivan Simic, Vladimir Mihajlov, Marija Cvetkovic</b>	<b>71</b>
TESTING GREENING POTENTIAL WITH GREEN ROOFTOPS OF INDUSTRIAL BUILDINGS	
<b>Ljiljana Jevremovic, Branko Turnsek, Marina Jordanovic, Milanka Vasic, Ana Stanojevic, Isidora Djordjevic</b>	<b>81</b>
THE IMPACT OF FLOATING HOUSING TO ENVIRONMENT	
<b>Sanja Jankovic, Goran Jovanovic, Vladan Nikolic</b>	<b>89</b>
POTENTIAL OF THE SOUTH SERBIA IN RENEWABLE ENERGY SOURCES AND THEIR EXPLOITATION	
<b>Marina Jordanovic, Ljiljana Jevremovic, Milanka Vasic, Branko Turnsek, Ana Stanojevic, Isidora Djordjevic</b>	<b>97</b>
INTERCONNECTION BETWEEN URBAN-BASED FACTORS AND FLEXIBLE HOUSING POTENTIALS	
<b>Milica Zivkovic, Slavisa Kondic, Milan Tanic, Vladana Petrovic</b>	<b>105</b>
BRINGING NATURE INTO URBAN AREAS THROUGH IMPLEMENTATION OF MODERN STORMWATER MANAGEMENT APPROACHES: EXAMPLES FROM VIENNA'S NEIGHBOURHOODS	
<b>Ljiljana Vasilevska, Magdalena Vasilevska</b>	<b>113</b>
CITIES ADAPTATION TO THE CLIMATE CHANGE BY USING GREEN BUILDING PRINCIPLES	
<b>Mila Pucar, Marina Nenkovic-Riznic, Borjan Brankov, Snezana Petrovic, Milena Stojkovic</b>	<b>121</b>
HOME BETWEEN THE HOUSE AND THE CITY - ARCHITECTURAL CONCEPT THAT USES URBAN PATTERN FOR HOUSING DESIGN	
<b>Hristina Krstic, Mila Cvetkovic, Goran Jovanovic, Vladana Petrovic, Sanja Spasic Djordjevic</b>	<b>131</b>
URBAN-ARCHITECTURAL ANALYSIS OF STUDENT DORMITORIES IN NIS	
<b>Hristina Krstic, Dusan Randjelovic, Miomir Vasov</b>	<b>141</b>
NEW URBAN FORMS AS A RESPONSE TO CLIMATE CHANGE – THE CASE OF WATER SQUARE BENTHEMPLEIN IN ROTTERDAM	
<b>Magdalena Vasilevska</b>	<b>149</b>
BIOPHILIA IN URBAN PLANNING AND ARCHITECTURAL DESIGN- MODERN EXPERIENCES AND PATTERN OF APPLICATION IN SERBIA	
<b>Danica Stankovic, Milan Tanic, Aleksandra Cvetanovic, Aleksandra Kostic, Vojislav Nikolic, Bojan Stankovic</b>	<b>155</b>
DETERMINATION OF CLIMATE CHARACTERISTICS AS A DOMINANT PARAMETER IN BUILDING DESIGN - CASE STUDY THE CITY OF NIS	
<b>Dusan Randjelovic, Miomir Vasov, Hristina Krstic, Aleksandra Curcic, Jelena Stevanovic</b>	<b>163</b>
QUALITY CRITERIA OF URBAN OPEN SPACES IN HIGH - RISE RESIDENTIAL COMPLEXES IN THE PROCESS OF URBAN REGENERATION	
<b>Ivana Bogdanovic Protic, Petar Mitkovic, Milena Dinic Brankovic, Milica Ljubenovic</b>	<b>171</b>
ARCHITECTURAL AND DESIGN REORGANIZATION OF THE RESIDENTIAL YARD IN THE MASS BUILDING UP OF VOLGOGRAD IN THE 80-S OF THE 20TH CENTURY	
<b>Valentina Serebryanaya</b>	<b>179</b>
A STRATEGIC POINT - GEOGRAPHICAL ASPECTS IN THE DEVELOPMENT OF THE CITY OF ZALĀU	
<b>Alexandra Cuibus</b>	<b>187</b>

VULNERABILITY OF THE TRADITIONAL HOUSE AND ITS IMMEDIATE YARD AREA IN CITY CENTERS OF THE CITIES OF SOUTH SERBIA <b>Ana Momcilovic – Petronijevic, Olivera Nikolic, Aleksandra Miric</b>	197
THE DREAM ABOUT GREEN CITIES - THE URBAN HERITAGE OF FUNCTIONALISM, BIALYSTOK - MOSAIC OF SPATIAL URBAN FORMS <b>Michał P. Chodorowski</b>	205
CONTRIBUTION OF PUBLIC-PRIVATE PARTNERSHIP TO THE DEVELOPMENT OF THE ENERGY EFFICIENCY MARKET <b>Andrijana Jovanovic</b>	215
WALKABILITY IN HISTORIC URBAN FABRICS AND ITS ROLE IN URBAN PLANNING AND DESIGN <b>Mahtab Baghaiepoor, Mostafa Behzadfar</b>	221
APPLICABILITY OF THEORETICAL APPROACHES OF URBAN SHRINKAGE TO SMALL TOWNS <b>Milica Ljubenic, Ivana Bogdanovic-Protic, Mihailo Mitkovic, Milica Igic, Jelena DJekic</b>	227
RAISING CITIZEN AWARENESS THROUGH PROMOTING BENEFITS OF SMALL URBAN STREAMS REVITALIZATION <b>Dr Aleksandra DJukic, Visnja Sretovic Brkovic</b>	235
THE DOT-TO-DOT@ COMMUNITY STATION: REPLICATION FOR SOCIAL INNOVATION & URBAN REACTIVATION IN EUROPEAN CITIES <b>Dr. Cristian Suau, Laura Petruskeviciute, Aleksandra Til</b>	245
GREEN ROOFS AS A MODEL OF RE-USING FLAT ROOFS <b>Danijela Milanovic, Danijela Djuric-Mijovic, Jelena Savic</b>	263
ROLE OF LOCAL AUTHORITIES AND CITIZENS IN URBAN PLANNING OF MICRO PUBLIC SPACES <b>Dejan Milenkovic</b>	271
CONCEPTUALISING MULTIFUNCTIONALITY OF PUBLIC OPEN SPACES FOR SUSTAINABLE URBAN DEVELOPMENT <b>Jelena Zivkovic, Milica Milojevic, Ana Nikezic, Ksenija Lalovic</b>	281
GREENING AS AN APPROACH FOR URBAN RENEWAL OF SHRINKING CITIES <b>Aleksandra DJukic, Tijana M. Vujcic, Branislav Antonic</b>	291
MODERN HOSPITALS IN THEIR NATURAL ENVIRONMENT <b>Olivera Nikolic, Aleksandar Kekovic, Vladan Nikolic, Ana Momcilovic Petronijevic</b>	299
SUSTAINABLE PLANNING IN PROTECTED NATURAL AREAS - CASE STUDY OF VLASINA LAKE <b>Biserka Mitrovic, Jelena Maric, Tamara Vukovic</b>	307
TEACHING SUSTAINABILITY: CONCEPT OF SMEDEREVO AS A HEALTHY CITY <b>Biserka Mitrovic, Tamara Vukovic</b>	315
INDUSTRIAL HERITAGE THROUGH CITY OF NIS' SPATIAL PLAN -VALUATION AND RECOGNITION WITH RECOMMENDATIONS ON INTEGRATION OF RENEWABLE ENERGY SOURCES <b>Aleksandar Jovanovic, Milena Jovanovic</b>	323
SPATIAL PLANNING AS A LAND-USE AND BUILDING REGULATION TOOL FOR PROTECTED NATURAL AREAS IN SERBIA <b>Marijana Pantic, Sasa Milijic, Jelena Zivanovic Miljkovic</b>	331
STORMWATER MANAGEMENT: JEDDAH WADI'S POTENTIALS <b>Aida Nayer, Oula Chikha</b>	339
BIOSWALES AS ELEMENTS OF GREEN INFRASTRUCTURE – FOREIGN PRACTICE AND POSSIBILITIES OF USE IN THE DISTRICT OF THE CITY OF NIS, SERBIA <b>Milena Dinic-Brankovic, Petar Mitkovic, Ivana Bogdanovic-Protic, Milica Igic, Jelena DJekic</b>	347
REVITALIZATION OF DEVASTATED RURAL AREAS IN THE REGION OF SOUTHERN AND EASTERN SERBIA: A REVIEW OF EXISTING DEVELOPMENT PATTERNS, POTENTIALS AND PLANNING POLICIES <b>Milica Igic, Petar Mitkovic, Milena Dinic Brankovic, Jelena DJekic, Milica Ljubenic, Mihailo Mitkovic</b>	357
THE TREATMENT OF GREENERY IN URBAN PLANNING DOCUMENTS: RESIDENTIAL AREAS IN NIS, SERBIA <b>Slavisa Kondic, Tanja Obradovic, Milica Zivkovic, Milan Tanic, Vojislav Nikolic</b>	365
VARIABLE SCALES OF ARCHITECTURE – FROM OBJECT TO THE TERRITORY: NOTES FOR THE MANIFEST <b>Natasa Jankovic, Ksenija Pantovic</b>	373
THE DESIGN OF SCHOOL GROUNDS GREENERY: INTERNAL AND EXTERNAL INFLUENCING FACTORS <b>Milan Tanic, Danica Stankovic, Milica Zivkovic, Vojislav Nikolic, Slavisa Kondic</b>	379



## TEACHING SUSTAINABILITY: CONCEPT OF SMEDEREVO AS A HEALTHY CITY

**Biserka Mitrovic**

*Faculty of Architecture, University of Belgrade, Serbia  
PhD., Associate Professor, [biserkamitrovic@gmail.com](mailto:biserkamitrovic@gmail.com)*

**Tamara Vukovic**

*Faculty of Architecture, University of Belgrade, Serbia  
Teaching assistant, [tamaris@ymail.com](mailto:tamaris@ymail.com)*

### **ABSTRACT**

*Sustainability as a broad concept has developed into a numerous new approaches both in theory and practice. One of the concepts that emerged from the ecological aspects of sustainability is the healthy city concept. Indubitably, its importance is emphasized in a new universal set of global goals – the Sustainable Development Goals, SDGs (UN, 2015), which represent a platform of the sustainable development by 2030. Namely, the Goal no. 3: Good health and wellbeing refers to the health-for-all concept, universal health safety and the access to quality health facilities (UN, 2015; Mitrovic, 2017). Nowadays, the healthy city concept refers to a wider frame - healthy environment and good quality of life in urban areas.*

*Meeting the contemporary trends in sustainable planning, as well as in high education for sustainability, the Master class in 2018 at the Master course Integral urbanism, Faculty of Architecture, University of Belgrade embraced the diversity of topics within an umbrella-topic 'Strengthening the cultural identity in Danube basin: case study of Smederevo', under the DANUrB international project and through INTERREG Danube EU program. It was released with the support of the city of Smederevo. Master class program was conducted in two parts: master thesis and master project.*

*One of the approaches to the assignment was to examine the possibilities of implementing of the health city concept to the city of Smederevo and its tributary areas. While the master thesis examined the theoretical background of the healthy city concept and in situ conditions of Smederevo, the master project offered a future network for diverse healthy places and activities, from the city centre to the surrounding green areas. The focus of this paper is to present the educational process and pedagogical methodology which resulted in the quality, realistic and implementable solutions.*

**Keywords:** sustainability; healthy city; urban planning; educational process; pedagogical methodology

## 1. INTRODUCTION

The 2018 Master class course of the Master Studies in Integral Urbanism programme at the Faculty of Architecture, University of Belgrade, embraced the diversity of topics within an umbrella-topic 'Strengthening the cultural identity in Danube basin: case study of Smederevo'. The course was realised as a part of the DANURB international project and through the INTERREG Danube EU program, with the support of the local authorities of the city of Smederevo, which represented the main territorial focus and research ground of the students' projects.

The Master class program consisted of two parts. The first part, master thesis focused on research and analysis, and the different theoretical sustainable concepts and aspects that could be applied, while aiming to define a conceptual framework and basis for the next step – the master project. Here the focus was steered towards implementation of the recognised theoretical principles, within the city of Smederevo and its surrounding area.

One of the sub-topics that were tackled by the students in the Master class course (B. Mitrović, mentor and T. Vukovic, teaching assistant) was related to sustainable urban and spatial planning as a support for cultural identity development of the territory of the city of Smederevo. The aim of the master studio was to address the contemporary trends in sustainable urban and spatial planning, as well as to pursue the aspects of sustainability in high education. General goals were related to researching the possibilities of an advanced activation of green areas within the city of Smederevo and its surroundings, through examining and implementing the healthy city concept. The focus of this paper is to present the educational process and pedagogical methodology which resulted in excellent, but most importantly, feasible solutions that could be easily implemented within the local context.

## 2. BACKGROUND RESEARCH

### 2.1. Sustainability framework

The sustainability still remains the concept which offers the most solutions to the problems of the contemporary city. Emphasising the local values, identity and the quality of life, sustainability itself becomes the different living concept for the cities and their tributary areas. The concept of sustainability provides the frame for the theory and practice of urban and spatial planning and joins the different aspects, such as economy, environment, social life and many more (Mitrović, 2017). According to Haughton (1996), the long term development can be assured by comprising the natural conservation, improvement of social progress and civil society. Other authors emphasize the rational use of renewable resources, self-sustainable communities, the economic vitality, and many more characteristics (Choguill, 1996; Hardoy, 1992). The new term of sustainable urbanisation refers to the relation between the basic aspects of sustainability and the urban-rural territory (UN Habitat, 2004). Today, sustainable urbanisation is very much promoted by the international organisations, such as UN-Habitat, OECD, World Bank and European Commission (Li-Yin Shen, 2011). Sustainability as a broad concept has developed into a numerous new approaches both in theory and practice.

### 2.2. Healthy city concept

One of the concepts that emerged from the ecological aspects of sustainability is the healthy city concept. Indubitably, its importance is emphasized in a new universal set of global goals – the Sustainable Development Goals, SDGs (UN, 2015), which represent a platform for sustainable development by 2030. Namely, the Goal no. 3: Good health and wellbeing refers to the health-for-all concept, universal health safety and the access to quality health facilities (UN, 2015; Mitrovic, 2017). Nowadays, the healthy city concept refers to a wider frame - healthy environment and good quality of life in urban areas (Edwards and Tsouros, 2008). The World Health Organisation (WHO, 2012) claims the health of the population is dependent of the conditions of communal life and the environment, while at the same time the improvement of the public health is seen as a constant process (WHO, 1999).

A healthy city is a city which is aware of its health and works on improving and preserving the health by creating and improving the possibilities of its built environment and by broadening the different resources that are available to its community in such a way that they enable the citizens to be physically active in their everyday life (Živković, 2015). A healthy city promotes different aspects of health, continually creates and improves its physical and social environments, expands the community resources, invests in the needed infrastructure to support these needs, and develop strategies and courses of action that are needed to realise

goals of improving the overall life of its citizens (WHO Europe, 2010). The three fundamental spatial-oriented elements are: supporting environment, healthy living and healthy urban design (WHO Europe, 2009).

The strategies connected to the healthy urban development need to be dynamic and ever present in the lives of the citizens, and in this way they are able to strive towards multi-layered and interconnected programs of urban development. These programs are usually implemented through relatively small but strategically planned spatial interventions that are intertwined with each other, as they are meant to be the starting points for future wide range connections. Furthermore, the preservation of the existing green spaces, and the integration of the new ones within the city, as well as programs who promote their usage as a part of an active and healthy lifestyle are stressed as very important for the implementation of the healthy city concept. Many of such programs and solutions have already been proposed or realised, such as ZJA, OKRA, & Witteveen+Bos, (2018), who created multipurpose spaces that can accommodate a broad range of activities on local levels, trying to reduce the negative effects and sources of different types of pollution (such as air, noise, light, soil, water, etc.) within the city.

The relevance and importance of the principles of sustainability and the healthy city concept were the starting points for the examining the possibilities of their implementation within the master thesis and master project. Being a very current global topic, relying both on the raising awareness about the need for a healthy lifestyle, as well as on the risks of living in the polluted urban areas, the healthy city offered myriads of opportunities for solving the problems of a heavily polluted, greenery-lacking industrial city of Smederevo.

### 3. METHODOLOGY APPROACH

The Master class program consisted of two parts: master thesis and master project, both being tied to the topic 'Sustainable urban and spatial planning as a support for cultural identity development of the territory of Smederevo' (Mitrović, B., mentor and Vuković, T., teaching assistant). The aim of the master studio was to address the contemporary trends in sustainable urban and spatial planning, as well as to pursue the aspects of sustainability in high education. Additionally, the goals of the course were related to the development of skills on specific knowledge, approaches and principles on sustainable development and urban planning and design, with the aim of understanding relations between natural and artificial surroundings (Mitrović at Al, 2017).



Figure 6: Diagram setting up a thematic framework; Author: Stanojević, M. (2018)

The first part - master thesis –was conducted in two directions: the research related to the Smederevo case study and theoretical research of the relevant sustainable concepts. Case study research included the content and documents research, as well as the field research, aiming to gather and systematise valid information, as well as to assess the present green infrastructure, and the general characteristics of city and its surrounding.

Additionally, master thesis aimed to define a conceptual framework and basis for the next step – the master project. Here the focus was steered towards implementation of the healthy city principles within the city of Smederevo and its tributary area. The master project was conducted in accordance with the educational model used in a studio, which is continuously considered as the most appropriate form for applying learning-by-doing approach and enhancing students' levels of expertise through practical learning (Schön, 1983; Gibbs, 1988; Casakin and van Timmeren, 2014).

The master project was focused on: examining and establishing different levels of intervention, defining the green network and reviving green places, with the aim to attract all groups of inhabitants and tourists. This

learning approach enabled the diversification of solutions at different planning levels – from strategic, general and related to the whole of the Smederevo territory, to the local regulatory planning, while spanning from the city centre to the surrounding green areas. At the same time, the teaching methods led the master project towards the testing of the chosen concept of the healthy city through introducing the eco-park model and defining the detailed plans of activation of green areas.

#### 4. CASE STUDY OF SMEDEREVO

The city of Smederevo was identified as a suitable location for the realization of the 2018 Master course in collaboration with the aforementioned DANUrB project. With its medieval historical sites, production and economic growth traditionally focused both on agriculture and heavy industry, the proximity to the Danube river, many underdeveloped or under-promoted tourist attractions, and distinct culture, the city checks many of the boxes required to make it an area open to a wide array of research topics and thus possible directions for future development. On one hand, due to the former and existing factories and their heavy-duty character, the urban area is highly polluted, which highly urges for action towards creating a healthier and ecologically sustainable environment. On the other hand, the city's position by the Danube river, as well as its tributary green areas offer various possibilities for contemporary activation, meeting the needs of the local community as much as the needs of visitors.



**Figure 7:** Spatial disposition of the important natural and cultural landscapes within the city of Smederevo recognised by the Spatial plan of the City of Smederevo; Author: Stojanović, M. (2018)

##### 4.1. Characteristics of Smederevo

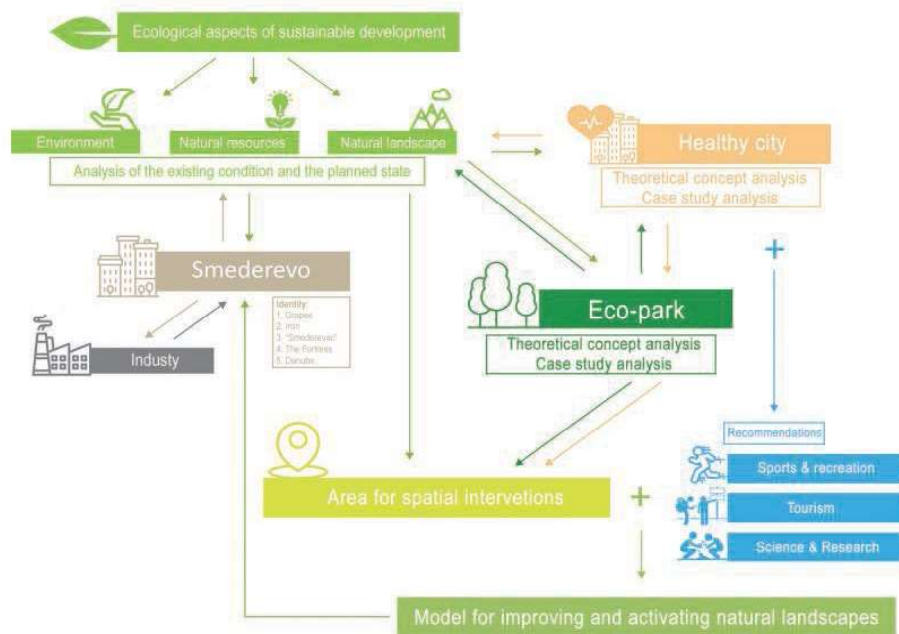
Smederevo territory is located in the north-eastern part of Serbia, on the right bank of the Danube river. The rich historical heritage of the city combined with its many natural beauties and resources, made the area suitable for urban and industrial development in the 20<sup>th</sup> century. The heavy industrialization left the region of the city highly polluted, having a great impact on its environment and citizens and urging for environmental action. Nonetheless, there are still untouched green areas located next to the river and its close proximity, while the accompanying non-urban parts of its metropolitan area are mostly used as agricultural land.

In the Spatial plan of the Republic of Serbia (2010), Smederevo is recognized as an important regional center. Its proximity to the Danube makes Smederevo an integral part of this European transportation network, thus further emphasising the need to explore different ways of its future development. The city territory presents a fertile ground for incorporating modern concepts of sustainable development, where one of the main goals should be focused on the revitalization and preservation of the available natural resources and scarce green areas, as well as on the improvement of overall health of the local community.

The analysis of the landscapes of Smederevo shows there are four types of landscapes within the city territory: natural, urban, suburban and cultivated, as well as natural and cultural landscapes, all of them being a representative aspect of the city's cultural heritage and identity (Spatial plan of the City of Smederevo, 2010 – 2015 – 2020). These natural and historical areas are scattered throughout the city and its metropolitan area and have suffered greatly due to human actions (Figure 2). One of them is the Šalinac grove (Šalinački lug), which is listed as one of the few protected natural areas of the city of Smederevo. These green places, starting from the city centre and stretching to its periphery and beyond, can form a green spine - a developmental route that promotes ecological and healthy lifestyle awareness, and a modern concept of tourism.

### 5. RESULTS AND FINDINGS

As aforementioned, the process of defining multi-level solutions was conducted through the master project, following thorough analysis and research methodology, focused on identifying the natural and environmental resources. The process is shown in the Figure 3 and is based on a co-relationship between the elements used in the research and the ways they form a model for improving and activating the natural landscapes.



**Figure 8:** Diagram of the co-relationship between the elements used in the research and the ways they form a model for improving and activating the natural landscapes; Author: Stojanović, M. (2018)

In order to establish a basis for a healthy city strategy for Smederevo and to offer a variety of possibilities, programs and activities aiming to introduce healthy lifestyle, but also to revive and activate the natural resources, green network in the form of green route was proposed. Its purpose was to connect different places of interest, all with different attributes and attractive in different ways. The idea was followed by the detailed proposal of different activities, active and passive ways of recreation, leisure, entertainment, culture and education, as well as new forms of tourism, targeting different groups of users – inhabitants or visitors. It was given in the form of programme and capacity assessment (Figure 4). The main criteria were related to diversity, compatibility, unique identity, optimal capacity and branding the targeted green places. Green spots are planned as mixed use of sport and recreation, tourism, protection of the environment, and science and research. Listed below are four chosen green areas – green points, with their specific characteristic:



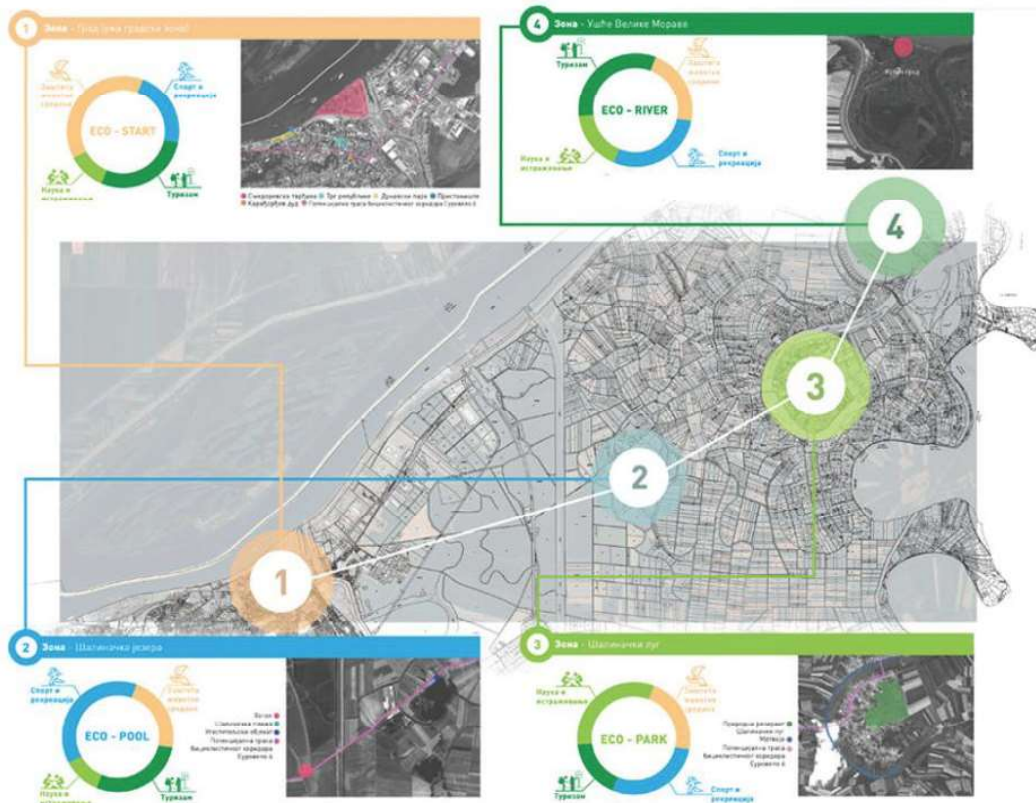


Figure 9: Illustration of the proposed 'eco-route' concept; Author: Stojanović, M. (2018)

- Eco-start - The urban center of Smederevo –cultural and historical center, and place of gathering, with variety of cultural, educational and recreational activities. This location is imagined as the starting point of the route whose main focus was centered around tourism and raising awareness of the importance of environmental preservation and a healthy lifestyle;
- Eco – pool - The Šalinac lakes (Šalinačka jezera) –in the close proximity to the city core, serves as the centre of activities related to sports and recreation within the Eco route. The planned spatial interventions include the improvement of the existing beach area of the lakes and integration of new spaces and activities meant for both tourists and the local community, such as open courts and playgrounds, recreational tracks, restaurants that serve local and healthy food products, as well as a hotel, gift shops and areas meant for sports tournaments and manifestations;
- Eco – park - The Šalinac grove (Šalinački lug) – rare protected natural landscape in the region, serves as the key point within the proposed green route. The planned solutions include the promotion of science and research with the stress on the preservation of the unique flora. It has different types of accommodation that would suit the incoming researches, lecturers, experts and tourists. The plan of development of this location is closely related to the activation of the protected grove area.
- Eco – river - The confluence of the Great Morava – an area of natural beauty and untouched greenery, also the location of an important archaeological site, Kulič city (Kulič grad) is the last stop of the route. Its main spatial focus is centred around the preservation of historical and cultural heritage, with the incorporation of a museum and spaces for cultural manifestations, all while keeping the plentiful untouched green areas in this location intact.

The four points, already presently connected to a certain extent by the Eurovelo 6 route, would be activated in different ways and to a different extent. Each of them would be a node with distinct types of dominant activities, intertwined within the overall green web. The idea was not only to determine the best possible courses of future development, but also to conduct a study of planning possibilities of these core points. In the previous research phase, a connection between the healthy city concept and eco-parks as one of the possible means of implementing the concept, were found. The Šalinac grove (Šalinački lug) was recognised as a



potential location for creating and developing such a complex use and thus testing the planning possibilities of the protected natural reserve and the settlement within which it is located.



**Figure 10:** Illustration of the first step in the process of spatially contextualizing the theoretical and analytical framework, with the distribution of uses and activities within the area of the Šalinac settlement that lead to the proposed detailed regulatory plan of the area ; Author: Stojanović, M. (2018)

The outcome of the whole process was a detailed regulation plan, whose main goal was to preserve, reactivate and redevelop the space it treated. The focus of new functions was on research, recreation and tourist spaces and facilities. The result was a well-structured, high quality work, which aimed at introducing fresh concepts, activities and spaces in a contemporary and most importantly feasible and realistic manner.

## 6. CONCLUSIONS

The paper presented the educational process, methodology and the outcome in the form of different planning solutions in accordance with the healthy city concept as well as in accordance with the main principles of ecological sustainability.

It is fair to say that the link between the research methods and further project-based method in the master thesis and project have given realistic and applicable results, tailored according to the needs of potential users. This learning approach enabled the diversification of solutions at different planning levels – from strategic, general and those related to the whole of the Smederevo territory, to local regulatory planning, encompassing a spatial frame spanning from the city center to the surrounding green areas. At the same time, this method enables the development of a set of skills on specific knowledge, but more importantly it incites critical thinking and a more creative approach to this real-life-based planning assignment. Finally, the process enabled the testing and proving of the chosen theoretical concept within an existing spatial setting, through these several aforementioned planning levels as a part of the master class project course.

The healthy city concept has proven itself as a valid solution that offers many options within the field of urban development – from raising the awareness of the necessity of a healthy lifestyle, to different land use solutions that involve and cater to different types of users. Furthermore, it proved to be a good choice in terms of minimizing the negative impact of industrial facilities on the urban areas and a benefit for the human health, through opening the possibilities of various forms of relaxation, recreation and leisure. The choice of Smederevo as the 'training ground' for the more detailed theoretical and spatial analysis of this concept, helped in showing not only the extent of the environmental and other issues that arose from directions of contemporary urban, often non-sustainable growth, but also highlighted the importance of these, essentially vulnerable areas and a broader spatial and contextual scope when it comes to integrating modern, creative and, most importantly sensible solutions.

## REFERENCES

1. Casakin H. and van Timmeren A., 2014. Analogies as Creative Inspiration Sources in the Design Studio: The Teamwork. Atiner Conference Paper Series No: ARC2014-1188, Athens, Greece
2. Choguill, C. L., 1996. Toward sustainability of human settlements. *Habitat International*, 20(3), VIII.
3. Edwards, P. and Tsouros, A., 2008. A Healthy City is an Active City: A Physical Activity Planning Guide. WHO Europe, Copenhagen.
4. Gibbs, G., 1988. A Guide to Teaching and Learning Methods. Oxford Centre for Staff and Learning Development Oxford, Oxford Brookes University, (Online edition (2013)), UK.
5. Hardoy, J. E., 1992. Environmental problems in third world cities. Earthscan, London, UK.
6. Haughton, G. and Hunter, C., 1996. Sustainable cities. Jessica Kingsley Publishers, London, UK.
7. Li-Yin Shen, J. J., 2011. The application of urban sustainability indicators - A comparison between various practices. *Habitat International* 35: 17-29.
8. Mitrovic, B. at al, 2017. Food Tourism Concept - Creating Synergy Between Urban and Rural Places - Case Study Of Maglič, Serbia. Conference proceedings, Places&Technologies 2017, Sarajevo.
9. Mitrović, B., 2017. Integrative and locally sensitive approach to the community planning in Serbia. Conference proceedings, Places&Tehnologies 2017, Sarajevo.
10. Republic Agency for Spatial Planning, 2011. Prostorni plan Republike Srbije 2010 – 2020 [Spatial plan of the Republic of Serbia 2010-2020]
11. Schön, D., 1983. Educating the reflective practitioner: Toward a new design for teaching and learning in the professions. London, U. K.: Temple Smith.
12. Smederevo Land Development Public Agency, 2011. Prostorni plan Grada Smedereva 2010 - 2015 – 2020 [Spatial plan for the city of Smederevo 2010 - 2015 - 2020]
13. Stanojević, M., 2018. Integralni pristup unapređenju kvaliteta i aktiviranju pejzažnih celina u Smederevu - Formiranje Eko - parka na principima koncepta Zdravog grada (Master thesis). Faculty of Architecture, University of Belgrade, Belgrade, Serbia.
14. UN Habitat, 2004. Urban indicator guidelines, Kenya
15. United Nations, 2015. Sustainable Development Goals (SDGs) - Sustainable Development Knowledge Platform
16. World Health Organization - WHO. 1999. Health21: The Health For All Policy Framework for the WHO European Region. World Health Organization, Copenhagen, Denmark. ISBN 92 890 1349 4
17. World Health Organization Europe - WHO Europe. 2009. Zagreb Declaration for Healthy Cities. World Health Organization, Copenhagen, Denmark.
18. World Health Organization Europe – WHO Europe. 2010. What is a healthy city?. <http://www.euro.who.int/en/health-topics/environment-and-health/urbanhealth/activities/healthy-cities/who-european-healthy-cities-network/what-is-a-healthy-city> [Accessed April 15, 2015]
19. Živković, J., 2015. Koncept integrisane rekreacije i mogućnost primene u uslovima razvoja gradova Srbije. 1-293, Doctoral dissertation, University of Belgrade, Faculty of Architecture, Belgrade.
20. ZJA, OKRA, & Witteveen+Bos, 2018. The Healthy City, Making Singapore a worldwide precedent for The Healthy City. [https://www.zja.nl/nl/media/inline/2016/2/23/793\\_the\\_healthy\\_city.pdf](https://www.zja.nl/nl/media/inline/2016/2/23/793_the_healthy_city.pdf) [Accessed: 20th September 2018]

2<sup>nd</sup> International Conference on Urban Planning - **ICUP2018**

**Supported by**

Arde Line, Smaj produkt, Fibran, Sika, Brann Bakery Nis, Teking architecture



CIP - Каталогизација у публикацији  
Народна библиотека Србије, Београд  
711.4(082)

INTERNATIONAL Conference on Urban Planning (2 ; 2018 ; Niš)  
Proceedings / [2nd] International Conference on Urban Planning -  
ICUP2018, Nis, November 14-17, 2018 ; [organized by Faculty of Civil  
Engineering and Architecture, University of Nis [and] Urban Planning  
Cluster, Nis ; editor Petar Mitkovic]. - Nis : Faculty of Civil Engineering  
and Architecture, University, 2018 (Nis : Grafika Galeb). - 386 str. :  
ilustr. ; 30 cm

Tiraž 150. - Str. 7: Foreword / Petar Mitković. - Napomene i bibliografske  
reference uz tekst. - Bibliografija uz svaki rad.

ISBN 978-86-88601-36-8 (FCEA)

1. Faculty of Civil Engineering and Architecture (Niš)

а) Урбанистичко планирање - Зборници

COBISS.SR-ID 269975564